

EOS Production Sites Network Performance Report: October 2014

This is a monthly summary of EOS network performance testing between production sites – comparing the measured performance against the requirements. **Significant improvements are noted in Green, Network problems in Red, System problems and Requirements issues in Gold, Issues in Orange, and other comments in Blue.**

Highlights:

- **Very stable flows**
 - **GPA: 3.72 ↑** (was 3.63 last month)
- **Requirements:** using the Network Requirements Database for 2014
 - Including GPM, OCO2, and SMAP (starting in FY '15) missions
- **Only 1 flow below Good**
 - GSFC → EROS: **Low**

Ratings Changes:

Upgrade: ↑ LaRC → JPL: **Almost Adequate** → **Excellent**

Downgrades: ↓

GSFC → EROS: **Almost Adequate** → **Low**

GHRC → NSIDC: **Excellent** → **Good**

(Requirement increased for AMSR Reprocessing)

Tests added:

GSFC → GHRC: **Excellent**

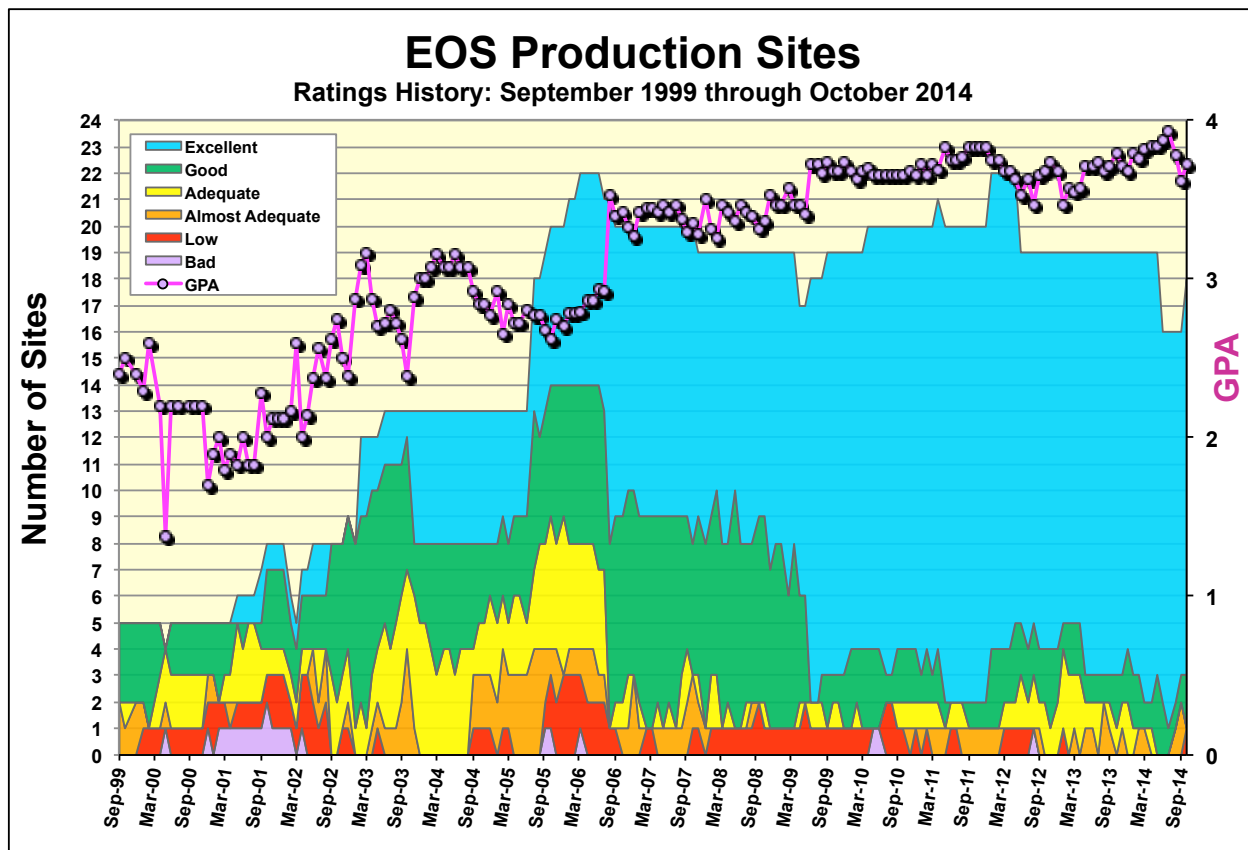
JPL → NSIDC: **Excellent**

Ratings Categories:

| Rating | Value | Criteria |
|-------------------------|------------|--|
| Excellent: | 4 | Total Kbps > Requirement * 3 |
| Good: | 3 | 1.3 * Requirement <= Total Kbps < Requirement * 3 |
| Adequate: | 2 | Requirement < Total Kbps < Requirement * 1.3 |
| Almost Adequate: | 1.5 | Requirement / 1.5 < Total Kbps < Requirement |
| Low: | 1 | Requirement / 3 < Total Kbps < Requirement / 1.5 |
| Bad: | 0 | Total Kbps < Requirement / 3 |

Where Total Kbps = Average Integrated Kbps (where available), otherwise just iperf

Note that “**Almost Adequate**” implies meeting the requirement excluding the usual 50% contingency factor.

Ratings History:

The chart above shows the number of sites in each rating category since EOS Production Site testing started in September 1999. Note that these ratings do NOT relate to absolute performance – they are relative to the EOS requirements.

Additions and deletions:

- 2011 April: Added RSS to GHRC
- 2011 May: Deleted WSC to ASF for ALOS
- 2012 January: Added NOAA → GSFC-SD3E
Added GSFC-SD3E → Wisconsin
- 2012 June: Deleted GSFC → LASP
Deleted GSFC ← → JAXA
- 2014 June: AMSR-E no longer producing data
Deleted JPL to RSS and RSS to GHRC
Deleted JPL to NSIDC
- 2014 October: Added JPL to NSIDC requirement for SMAP
Added GSFC to GHRC requirement for LANCE

Requirements Basis:

In June 2014, the requirements were updated to the latest values in the database!

- Added missions GPM, OCO2, and SMAP (effective FY '15) missions
- Removed AMSR-E, ICESAT flows (AMSR-E reprocessing remains includes)
- MODIS reprocessing incorporated month-by-month
 - Reprocessing requirement began 2014 August

In June 2012, the requirements were switched, to use the EOSDIS network requirements database.

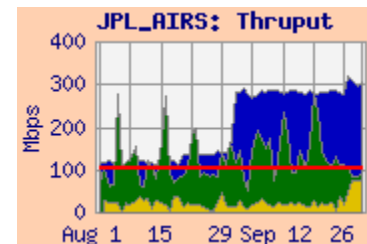
Previously, the requirements were based on the EOS Networks Requirements Handbook, Version 1.4.3 (from which the original database requirements were derived). Prior to that, the requirements were derived from version 1.4.2.

One main difference between Handbooks 1.4.2 and 1.4.3 is that in 1.4.3 most flows which occur less than once per day were averaged over their production period. These flows were typically monthly Level 3 data transfers, which were specified to be sent in just a few hours. However, they could easily be accommodated either between the per-orbit flows, or within the built-in contingency. Previously, these flows were added in linearly to the requirements, making the requirements unrealistically high.

Additionally, the contingency for reprocessing flows greater than 2X reprocessing was reduced. These flows WERE a major component of the contingency, so adding additional contingency on top of these flows was considered excessive.

Integrated Charts:

Integrated charts are included with site details, where available. These charts are “Area” charts, with a “salmon” background. A sample Integrated chart is shown here. The yellow area at the bottom represents the daily average of the user flow from the source facility (e.g., GSFC, in this example) to the destination facility (JPL, in this example) obtained from routers via “netflow”.

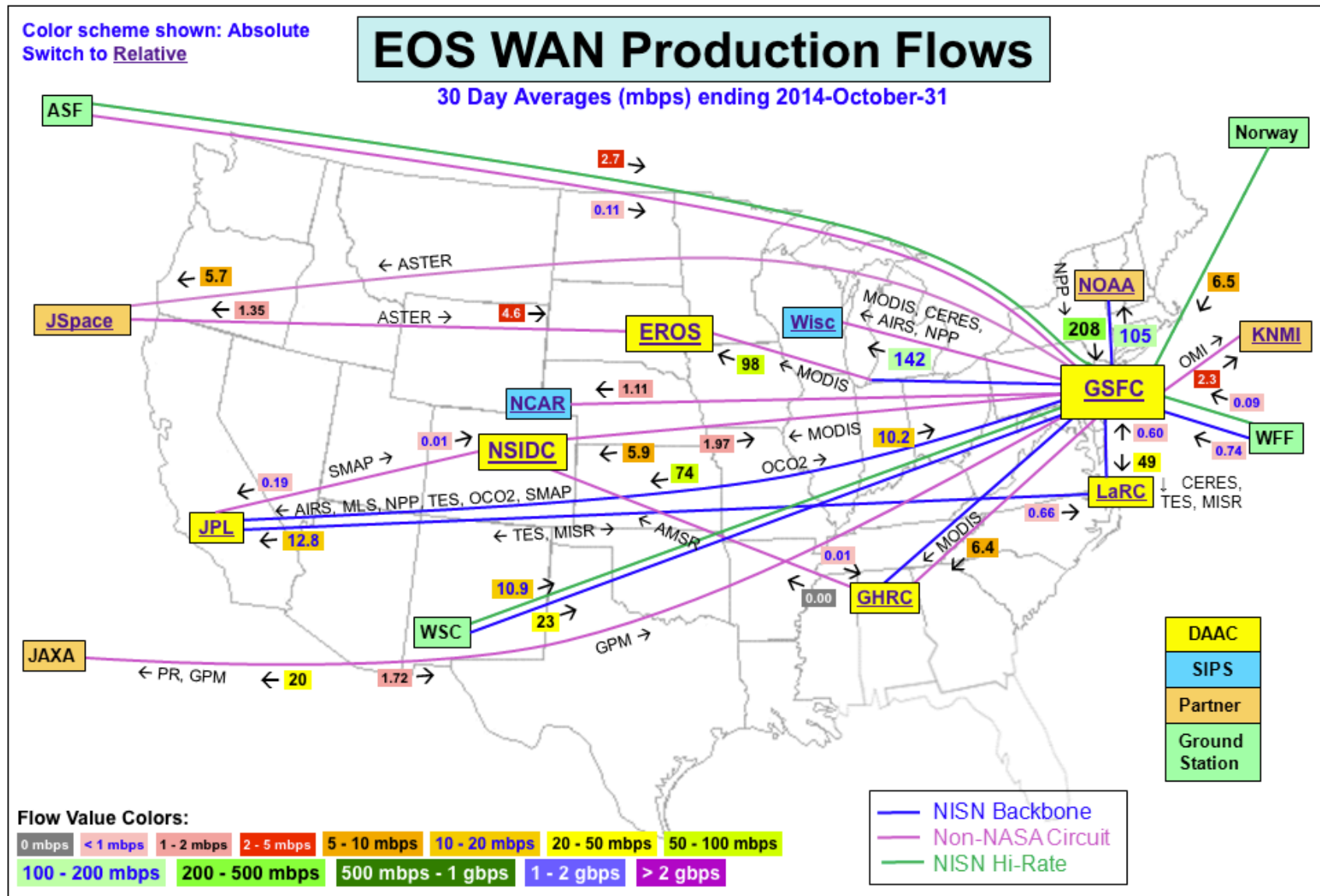


The green area is stacked on top of the user flow, and represents the “adjusted” daily average iperf throughput between the source-destination pair most closely corresponding to the requirement. This iperf measurement essentially shows the circuit capacity remaining with the user flows active. Adjustments are made to compensate for various systematic effects, and are best considered as an approximation.

The red line is the requirement for the flow from the source to destination facilities. On some charts a blue area is also present – usually “behind” the green area – representing adjusted iperf measurements from a second source node at the same facility.

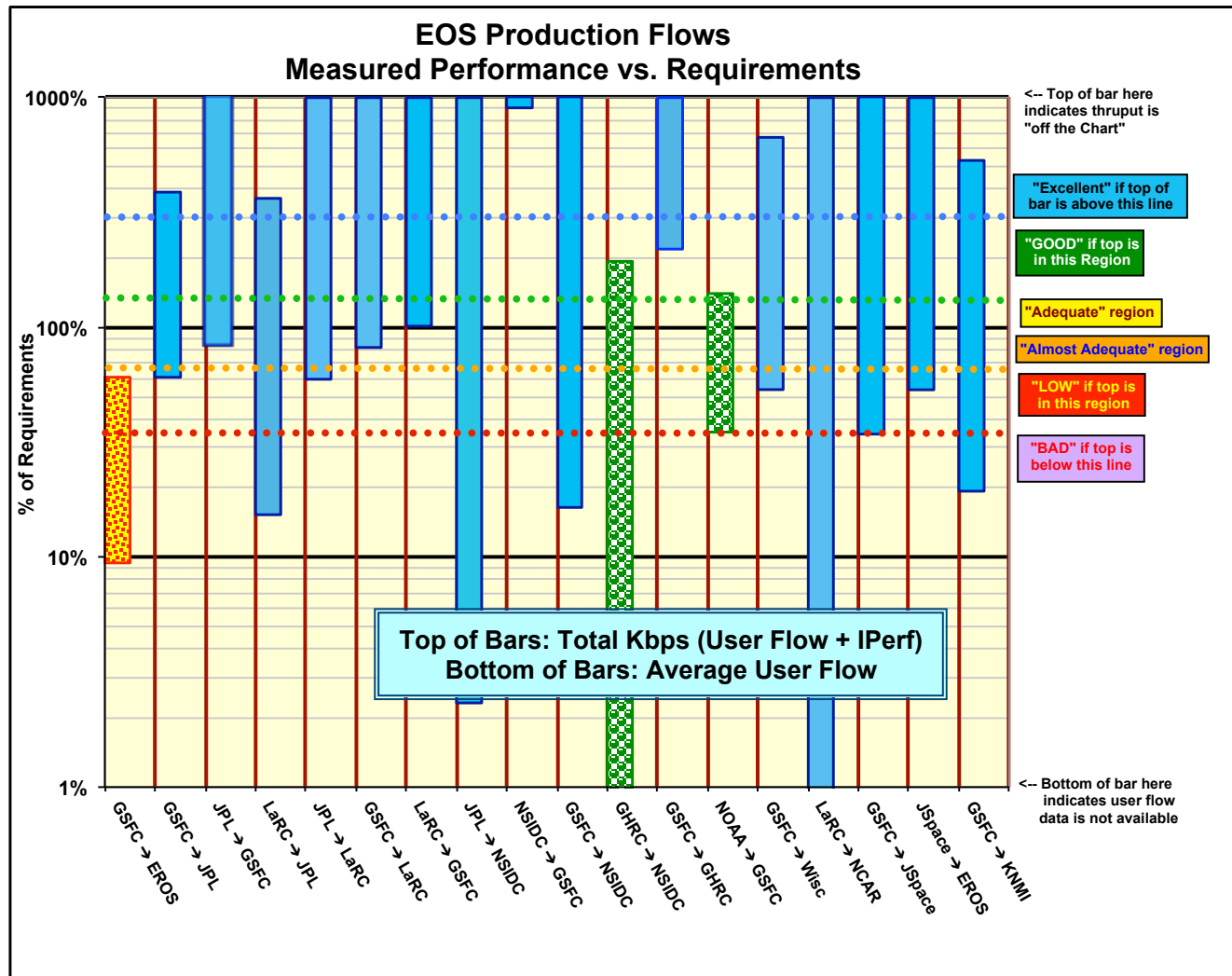
Network Requirements vs. Measured Performance

| October 2014 | | Requirements (mbps) | | Testing | | | | Ratings | | |
|----------------------|---|---|--------|-------------------------------|------------------------|-------------------|-----------------|--------------------------------|------------|------|
| Source → Destination | Instrument (s) | Current | Old | Source → Dest Nodes | Average User Flow mbps | iperf Median mbps | Integrated mbps | Ratings re FY '15 Requirements | | |
| | | FY '15 | FY '12 | | | | | This Month | Last Month | |
| GSFC → EROS | MODIS, LandSat | 1016.2 | 548.4 | MODAPS-PDR → EROS LPDAAC | 96.1 | 591.0 | 617.4 | Low | AA | |
| GSFC → JPL | AIRS, MLS, NPP, TES, OCO2, SMAP | 121 | 63.0 | NPP SD3E OPS1 → JPL-AIRS | 74.0 | 449.5 | 467.4 | Excellent | Ex | |
| JPL → GSFC | MLS, OCO2 | 11.9 | 0.57 | JPL-PODAAC → GSFC GES DISC | 10.1 | 372.4 | 372.4 | Excellent | Ex | |
| LaRC → JPL | TES, MISR | 83.5 | 83.5 | LARC-ANGE → JPL-TES | 12.8 | 304.5 | | Excellent | AA | |
| JPL → LaRC | TES | 1.1 | 1.1 | JPL-TES → LARC-PTH | 0.65 | 398.5 | 398.5 | Excellent | Ex | |
| GSFC → LaRC | CERES, MISR, MOPITT, TES, MODIS | 60.7 | 52.2 | GSFC EDOS → LaRC ASDC | 49.7 | 815.9 | 819.7 | Excellent | Ex | |
| LaRC → GSFC | MISR | 0.6 | 0.6 | LARC-ASDC → GES DISC | 0.61 | 934.4 | 934.4 | Excellent | Ex | |
| JPL → NSIDC | AMSR-E, SMAP | 17.1 | 0.16 | JPL-SMAP → NSIDC | 0.40 | 409.0 | | Excellent | n/a | |
| NSIDC → GSFC | AMSR-E, MODIS, ICESAT | 0.009 | 0.017 | NSIDC DAAC → GES DISC | 1.97 | 779.8 | 779.9 | Excellent | Ex | |
| GSFC → NSIDC | AMSR-E, MODIS, ICESAT, GBAD | 38.5 | 8.4 | MODAPS PDR → NSIDC-DAAC | 6.3 | 631.8 | 631.8 | Excellent | Ex | |
| GHRC → NSIDC | AMSR-E | 5.14 | 2.08 | GHRC → NSIDC DAAC | 0.003 | 10.0 | 10.0 | Good | Ex | |
| GSFC → GHRC | AMSR-E, MODIS | 2.9 | 0.00 | GSFC EDOS → GHRC via NISN | 6.36 | 153.8 | 153.8 | Excellent | Ex | |
| NOAA → GSFC | NPP | 601.3 | 522.3 | NOAA-PTH → GSFC NPP-SD3E OPS1 | 210.7 | 812.8 | 844.7 | Good | Good | |
| GSFC → Wisc | NPP, MODIS, CERES, AIRS | 264.2 | 259.1 | GSFC NPP-SD3E OPS1 → WISC | 141.8 | 1775.1 | 1775.1 | Excellent | Ex | |
| LaRC → NCAR | MOPITT | 0.044 | 0.044 | LaRC-PTH → NCAR | | 181.2 | | Excellent | Ex | |
| GSFC → JAXA | TRMM, AMSR-E, MODIS, GPM | 15.4 | 3.5 | GSFC-EBnet → JAXA | 20.1 | n/a | | n/a | n/a | |
| JAXA → GSFC | AMSR-E, GPM | 3.3 | 0.16 | JAXA → GSFC-EBnet | 1.72 | n/a | | n/a | n/a | |
| GSFC → JSpace | ASTER | 16.4 | 6.8 | GSFC-EDOS → JSpace-ERSD | 5.64 | 172.1 | 175.1 | Excellent | Ex | |
| JSpace → EROS | ASTER | 8.3 | 8.3 | JSpace-ERSD → EROS PTH | 4.46 | 297.6 | 299.0 | Excellent | Ex | |
| GSFC → KNMI | OMI | 13.4 | 13.4 | GSFC-OMISIPS → KNMI ODPS | 2.59 | 71.2 | 71.2 | Excellent | Ex | |
| | | | | | | | | | | |
| | | Significant change from FY '12 to FY '14 | | | | | | Ratings | | |
| | | Changed in 2014 | | Value used for ratings | | | | Summary | | |
| | | | | | | | | FY '15 Req | | |
| | | | | | | | | Score | Prev | |
| *Criteria: | Excellent | Total Kbps > Requirement * 3 | | | | | | Excellent | 15 | 13 |
| | Good | 1.3 * Requirement <= Total Kbps < Requirement * 3 | | | | | | Good | 2 | 1 |
| | Adequate | Requirement < Total Kbps < Requirement * 1.3 | | | | | | Adequate | 0 | 0 |
| | Almost Adequate | Requirement / 1.5 < Total Kbps < Requirement | | | | | | Almost Adequate | 0 | 2 |
| | Low | Requirement / 3 < Total Kbps < Requirement / 1.5 | | | | | | Low | 1 | 0 |
| | Bad | Total Kbps < Requirement / 3 | | | | | | Bad | 0 | 0 |
| | | | | | | | | | | |
| | | | | | | | | Total Sites | 18 | 16 |
| Notes: | Flow Requirements include: TRMM, Terra, Aqua, Aura, ICESAT, QuikScat, GEOS, NPP, GPM, SMAP, OCO2 | | | | | | | GPA | 3.72 | 3.63 |
| | | | | | | | | | | |



This chart shows the averages for the main EOS production flows for the current month. **The “open” flows from the ground stations were added this month, as well as JPL ↔ NSIDC.** Up to date flow information can be found at http://ensight.eos.nasa.gov/Weather/web/hourly/Production_Flows-A.shtml

This graph shows a bar for each source-destination pair – relating the measurements to the requirements for that pair. The bottom of each bar represents the average measured user flow from the source site to the destination site (as a percent of the requirement) – it indicates the relationship between the requirements and actual flows. Note that the requirements generally include a 50% contingency factor above what was specified by the projects, so a value of 67% (dotted orange line) would indicate that the project is flowing as much data as requested. The top of each bar similarly represents the integrated measurement, combining the user flow with Iperf measurements – this value (when available) is used to determine the ratings.



1) EROS:

Ratings: GSFC → EROS: ↓ **Almost Adequate** → **Low**
 JSpace → EROS: Continued **Excellent**

1.1 GSFC → EROS:

Web Pages: <http://ensight.eos.nasa.gov/Organizations/production/EROS.shtml>
http://ensight.eos.nasa.gov/Organizations/production/EROS_PTH.shtml

Test Results:

| Source → Dest | Medians of daily tests (mbps) | | | User Flow | Integrated |
|------------------------------------|-------------------------------|--------|--------|-----------|------------|
| | Best | Median | Worst | | |
| MODAPS-PDR → EROS LPDAAC | 728.1 | 591.0 | 325.9 | 96.1 | 617.4 |
| GSFC-EDOS → EROS LPDAAC | 441.0 | 375.6 | 29.9 | | |
| GES DISC → EROS LPDAAC | 663.6 | 564.0 | 239.8 | | |
| GSFC-ENPL → EROS LPDAAC | 1109.0 | 1099.5 | 927.0 | | |
| GSFC-ENPL → EROS PTH | 2310.8 | 2236.2 | 1950.6 | | |
| GSFC-ENPL → EROS PTH (IPv6) | n/a | n/a | n/a | | |
| GSFC-NISN → EROS PTH | 794.0 | 569.0 | 166.0 | | |
| ESDIS-PS → EROS PTH | 829.0 | 575.0 | 122.6 | | |

Requirements:

| Source → Dest | Date | mbps | prev | Rating |
|--------------------|------|--------|------|------------|
| GSFC → EROS | 8/14 | 1016.1 | 49.8 | Low |

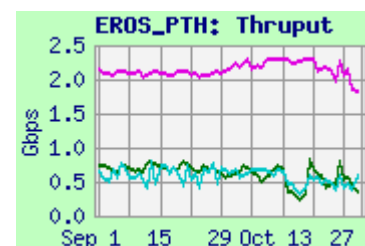
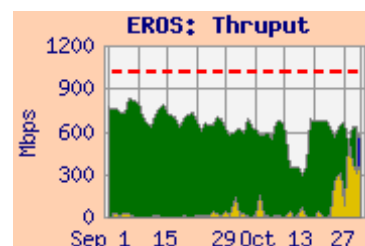
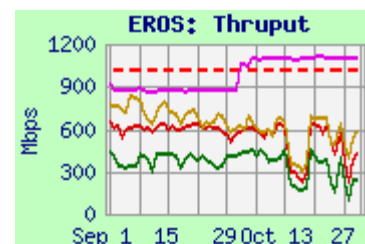
Comments: The rating is based on the **MODAPS-PDR** Server to EROS LP DAAC measurement, since that is the primary flow.

The reprocessing flow requirement began in August, so the requirement increased to 1016.1 mbps (was only 49.8 mbps previously). Note from the integrated graph that the flow actually increased in mid October – the peaks were about 30% of the requirement (including reprocessing). The user flow this month averaged 96 mbps – much higher than last month's 21.5 mbps – now about 9.5% of the requirement.

Thruput from all sources was slightly lower this month. The median integrated thruput from **MODAPS-PDR** to LPDAAC was below 2/3 of the new requirement (which includes reprocessing), so the rating remains **Almost Adequate**.

The median thruput from **GSFC-EDOS** and **GES DISC** (also on EBnet) was also slightly lower than last month, with typical low daily minimums.

The route from EBnet sources is via the Doors, to the NISN 10 gbps backbone, to the NISN Chicago CIEF, then via a NISN GigE, peering at the StarLight Gigapop with the EROS OC-48 (2.5 gbps) tail circuit.



1) **EROS:** (continued)

Iperf testing for comparison is performed from **GSFC-ENPL** to both LPDAAC (the “FTL” node, outside the EROS firewall) and to EROS-PTH (both 10 gig hosts). The route from **GSFC-ENPL** to EROS is from GSFC via a direct 10 gig connection to the MAX, to Internet2, to StarLight in Chicago, then via the EROS OC-48 tail circuit. **GSFC-ENPL** (IPv4) to EROS-PTH now typically gets over 2 gbps. This shows that the capacity of this network is well in excess of the requirement (including reprocessing) – it would be rated **Good**. **GSFC-ENPL IPv6** tests have been failing since February.

The difference between the stable performance over internet2, compared with the reduced performance via NISN suggests that the congestion is on the NISN route.

Additional Test Results:

| Source → Dest | Medians of daily tests (mbps) | | | User Flow | Integrated |
|----------------------------------|-------------------------------|--------|-------|-----------|------------|
| | Best | Median | Worst | | |
| JSpace-ERSD → EROS LPDAAC | 311.7 | 297.6 | 230.3 | 4.5 | 299.0 |
| JSpace → EROS PTH | 282.2 | 187.1 | 103.3 | | |
| NSIDC SIDADS → EROS PTH | 920.9 | 910.7 | 745.2 | | |
| LaRC PTH → EROS PTH | 189.3 | 188.7 | 119.0 | | |

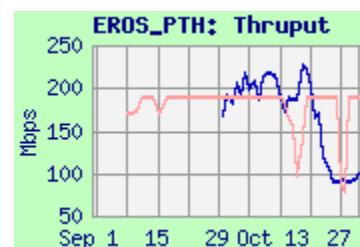
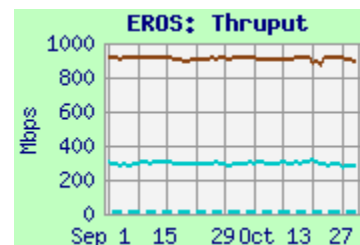
Requirements:

| Source → Dest | Date | mbps | prev | Rating |
|----------------------|----------|------|------|------------------|
| ERSDAC → EROS | FY '06 – | 8.3 | 8.3 | Excellent |

1.2 JSpace-ERSD → EROS: **Excellent**. See section 9 (ERSD) for further discussion.

1.3 NSIDC → EROS-PTH: Performance was stable and excellent this month.

1.4 LaRC → EROS-PTH: Testing from **LaRC-PTH** to EROS-PTH was restored in June (had been failing since April). The route is via NISN SIP to the Chicago CIEF to StarLight – similar to EBnet sources. Performance degraded somewhat this month, similarly to the other NISN sources. Note that **LaRC-PTH** has a 200 mbps outflow limitation.



2) to GSFC**2.1) to NPP, GES DISC, etc.**Ratings: NOAA → NPP SD3E: Continued **Good**NSIDC → GES DISC: Continued **Excellent**LDAAC → GES DISC: Continued **Excellent**JPL → GSFC: Continued **Excellent**

Web Pages:

http://ensight.eos.nasa.gov/Missions/NPP/GSFC_SD3E.shtml<http://ensight.eos.nasa.gov/Organizations/production/GDAAC.shtml>http://ensight.eos.nasa.gov/Organizations/production/ESDIS_PTH.shtmlhttp://ensight.eos.nasa.gov/Missions/icesat/GSFC_ISIPS.shtml**Test Results:**

| Source → Dest | Medians of daily tests (mbps) | | | User Flow | Integrated |
|--------------------------------------|-------------------------------|--------|-------|-----------|------------|
| | Best | Median | Worst | | |
| NOAA-PTH → NPP-SD3E-OPS1 | 832.4 | 812.8 | 756.5 | 210.7 | 844.7 |
| EROS LPDAAC → GES DISC | 263.4 | 206.0 | 103.0 | | |
| EROS PTH → GSFC-ESDIS PTH | 918.0 | 451.5 | 128.0 | | |
| JPL-PODAAC → GES DISC | 814.9 | 235.0 | 95.8 | 10.1 | |
| JPL-PTH → GSFC-NISN | 699.3 | 511.0 | 153.8 | | |
| LaRC ASDC → GES DISC | 936.2 | 934.4 | 787.7 | 0.61 | |
| LARC-ANGe → GSFC-ESDIS PTH | 936.1 | 905.8 | 853.9 | | |
| NSIDC DAAC → GES DISC | 856.6 | 779.8 | 598.3 | 1.97 | |
| NSIDC DAAC → GSFC-ISIPS (scp) | 31.9 | 31.2 | 27.9 | | |

Requirements:

| Source → Dest | Date | FY '14 | FY '12 | Rating |
|-----------------------------|----------|--------|--------|------------------|
| NSIDC → GSFC | FY '14 – | 0.009 | 0.017 | Excellent |
| LaRC ASDC → GES DISC | CY '12 – | 0.6 | 0.6 | Excellent |
| JPL → GSFC combined | FY '14 – | 11.9 | 0.57 | Excellent |
| NOAA → NPP SD3E | FY '14 – | 601.3 | 522.3 | Good |

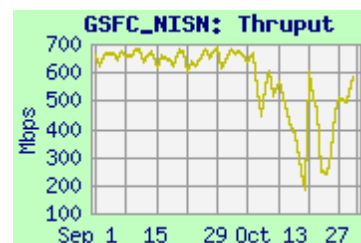
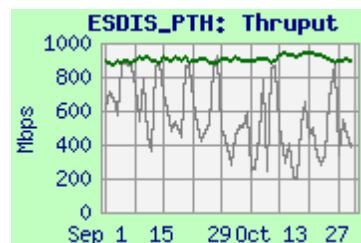
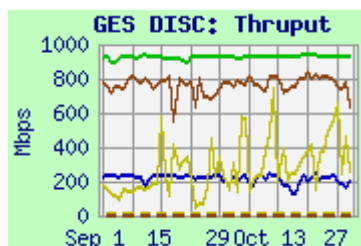
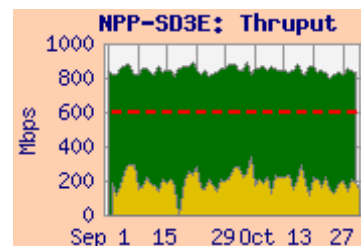
Comments:

2.1.1 NOAA → NPP-SD3E: Performance from **NOAA-PTH** to GSFC NPP-SD3E-OPS1 was very steady at about 800 mbps, limited by the Gig-E interface on the NOAA side test machine (the circuits are all 10 gbps). User flow was close to usual, and about 50% of the requirement (without contingency).

2.1.2 EROS LPDAAC, EROS-PTH → GSFC: The throughput for tests from **EROS LPDAAC** to GES DISC and from **EROS-PTH** to ESDIS-PTH were again noisy, with the PTH's getting better results than the DAACs.

2.1.3 JPL → GSFC: Thruput from **JPL-PODAAC** to GES DISC is noisy, but improved this month, with a switch to a different node at JPL. Thruput. Note that JPL → EBnet flows take Internet2 instead of NISN, based on JPL routing policies. Thruput was well above 3 x the requirement, so the rating remains **Excellent**. The 10.1 mbps average user flow increased from 4.9 mbps last month, presumably due to OCO2 flows after its July 2 launch. It is now very close to the new requirement (with contingency).

Testing from **JPL-PTH** to GSFC-NISN is routed via NISN PIP, became noisy this month, indicating congestion on NISN.

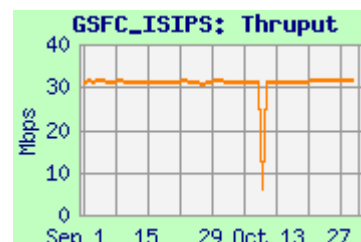


2.1) to NPP, GES DISC continued.

2.1.4 LaRC → GSFC: Performance from **LaRC ASDC** to GES DISC was very stable this month, as it has been since the host upgrade at ASDC in February '14. Thruput from **LaRC ANGe** to ESDIS-PTH was also stable. Both results remained way above 3 x the modest requirement, so the rating continues as **Excellent**. The user flow this month was very close to the requirement.

2.1.5 NSIDC → GSFC: Performance from **NSIDC** to GES DISC improved in October 2013, due to an upgraded host at NSIDC, dropped in January due to NSIDC routing issues, and recovered in February. It remained way above the tiny requirement, so the rating remains **Excellent**. The user flow was again well above both the old and lower new requirement.

Thruput to **GSFC-ISIPS** using SCP remains well above the requirement.

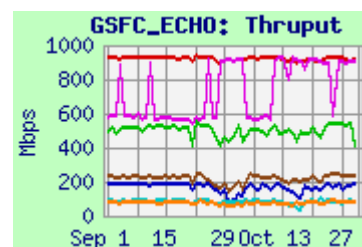


2.2 GSFC-ECHO: EOS Metadata Clearinghouse

Web Page: http://ensight.eos.nasa.gov/Organizations/gsfc/GSFC_ECHO.shtml

Test Results:

| Source | Medians of daily tests (mbps) | | |
|------------------------|-------------------------------|--------|-------|
| | Best | Median | Worst |
| EROS LPDAAC | 194.0 | 167.6 | 95.9 |
| EROS LPDAAC ftp | 127.0 | 86.0 | 22.6 |
| GES DISC | 934.6 | 921.2 | 874.0 |
| GES DISC ftp | 941.2 | 901.4 | 529.8 |
| LaRC ASDC DAAC | 555.3 | 489.3 | 414.4 |
| NSIDC DAAC | 244.5 | 224.1 | 183.7 |
| NSIDC DAAC ftp | 110.5 | 76.3 | 40.8 |



Comments: Performance was mostly stable from all sources. FTP performance is mostly limited by TCP window size – especially from sites with long RTT.

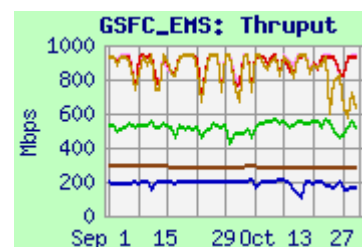
Testing to the “Common Metadata Repository” (CMR), which will replace ECHO, was started in November.

2.3 GSFC-EMS: EOS Metrics System

Web Page: http://ensight.eos.nasa.gov/Organizations/gsfc/GSFC_EMS.shtml

Test Results:

| Source | Medians of daily tests (mbps) | | |
|---------------------|-------------------------------|--------|-------|
| | Best | Median | Worst |
| EROS LPDAAC | 206.8 | 195.1 | 89.2 |
| ESDIS-PTH | 938.8 | 933.9 | 628.8 |
| GES DISC | 937.7 | 931.9 | 658.4 |
| LARC ASDC | 571.6 | 541.9 | 426.0 |
| MODAPS-PDR | 937.8 | 881.3 | 220.1 |
| NSIDC-SIDADS | 286.5 | 285.1 | 272.1 |



Comments: Testing is performed to GSFC-EMS from the above nodes, iperf only.. Performance was stable from all sources.

3) JPL:

3.1) GSFC → JPL:

Ratings: GSFC → JPL: Continued Excellent

Test Results: (additional results on next page)

| Source → Dest | Medians of daily tests (mbps) | | | User Flow | Integrated |
|------------------------------------|-------------------------------|--------|-------|-----------|------------|
| | Best | Median | Worst | | |
| NPP-SD3E-OPS1 → JPL-AIRS | 775.7 | 449.5 | 231.5 | 74.0 | 467.4 |
| GSFC-GES DISC → JPL-AIRS | 189.6 | 173.7 | 117.4 | | |
| ESDIS-PTH → JPL-AIRS | 606.1 | 335.6 | 173.8 | | |
| GSFC-NISN → JPL-AIRS | 318.5 | 137.0 | 41.7 | | |
| ESDIS-PTH → JPL-NISN-PTH | 228.2 | 150.0 | 83.8 | | |
| NPP-SD3E-OPS1 → JPL-Sounder | 755.7 | 427.1 | 230.0 | | |
| GSFC-NISN → JPL-Sounder | 367.8 | 178.9 | 58.5 | | |

Requirements:

| Source → Dest | Date | Mbps | Prev | Rating |
|----------------------------|--------|--------------|-----------|---|
| GSFC → JPL Combined | FY '15 | 121.0 | 63 | Excellent |
| GSFC → JPL AIRS | FY '15 | 11.4 | 40 | Excellent |
| GSFC NPP → JPL Sounder | FY '15 | 15.9 | 15 | Excellent |
| GSFC → JPL SMAP | FY '15 | 49.1 | - | Low |
| GSFC → JPL OCO2 | FY '15 | 36.6 | - | Excellent |
| GSFC → JPL Other | FY '15 | 8.0 | 1.0 | |

Comments: **3.1.1 AIRS , Overall:**

http://ensight.eos.nasa.gov/Missions/aqua/JPL_AIRS.shtml

OCO2 requirements were added last month, and SMAP requirements added this month.

Most GSFC → JPL thrupt tests experienced significant diurnal variation this month, believed to be due to congestion on the 1 gbps connection between NISN PIP and the JPL campus. The OCO2 "hourly" graph at the right is an example -- it shows a 4:1 typical ratio between the daily best and worst hours.

The median integrated thrupt from **NPP-SD3E-OPS1** remains above 3 x the AIRS requirement, so the AIRS rating remains Excellent.

3.1.2 The JPL overall rating is also based on the **NPP-SD3E-OPS1** to JPL AIRS thrupt, compared with the sum of all the GSFC to JPL requirements. The median thrupt remained above 3 x this requirement, so the overall rating remains Excellent. The average user flow this month was consistent with the increased requirement, without contingency.

3.1.3 ESDIS-PTH to JPL-NISN-PTH:

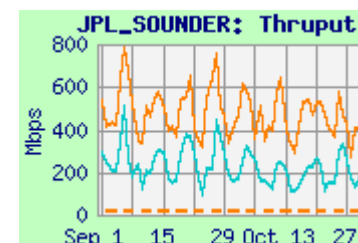
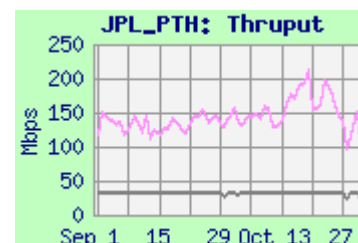
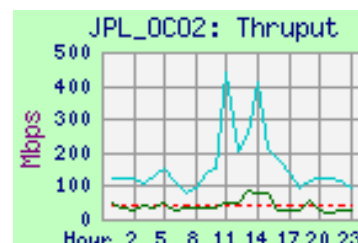
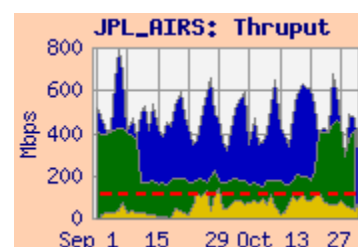
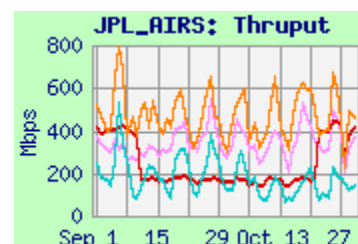
http://ensight.eos.nasa.gov/Organizations/daac/JPL_NISN_PTH.shtml

The thrupt from **ESDIS-PTH** to JPL-NISN-PTH is stable, and does not exhibit diurnal variation, providing further evidence that the congestion is between NISN and the JPL campus.

3.1.4 NPP to JPL Sounder:

http://ensight.eos.nasa.gov/Missions/NPP/JPL_SOUNDER.shtml

Performance from **NPP-SD3E-OPS1** and **GSFC-NISN** again had significant diurnal variation this month, but was long term stable and well above the requirement rating Excellent.



3.1) GSFC → JPL: continued

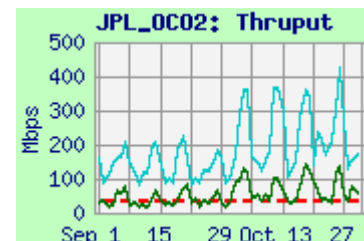
Test Results: continued

| Source → Dest | | Medians of daily tests (mbps) | | | Requirement (mbps) | Rating |
|------------------------|-----------|-------------------------------|--------|-------|--------------------|-----------|
| | | Best | Median | Worst | | |
| GSFC-EDOS → JPL-OCO2 | 1 stream | 230.5 | 59.3 | 1.7 | 36.6 | Good |
| | 6 streams | 449.3 | 182.7 | 26.2 | | Excellent |
| GSFC-EDOS → JPL-SMAP | 1 stream | 44.6 | 5.3 | 2.1 | 49 | Bad |
| | 6 streams | 107.2 | 20.0 | 7.8 | | Low |
| ESDIS-PTH → JPL-MLS | | 470.6 | 394.7 | 222.5 | | |
| GSFC-NISN → JPL-MLS | | 476.0 | 350.1 | 125.8 | | |
| ESDIS-PTH → JPL-PODAAC | | 482.5 | 284.3 | 129.8 | | |
| GSFC-NISN → JPL-PODAAC | | 529.0 | 276.1 | 81.7 | | |
| ESDIS-PS → JPL-QSCAT | | 93.1 | 92.6 | 82.8 | | |
| GSFC-NISN → JPL-QSCAT | | 74.1 | 67.6 | 44.6 | | |

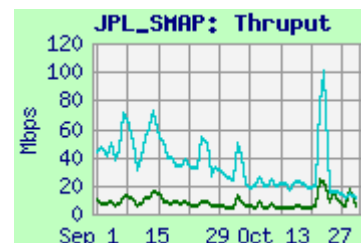
3.1.5 OCO2:
http://ensight.eos.nasa.gov/Organizations/daac/JPL_OCO2.shtml

OCO-2 was launched July 2! Testing from **EDOS** to OCO2 is done using both a **single stream** and **6 streams**. Thruput exhibited significant diurnal variation, like GSFC to other JPL sites.

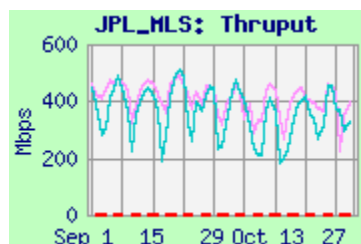
Performance from EDOS (using 6 streams) is rated **Excellent**. Single stream performance would be rated **Good**.

**3.1.6 SMAP:**
http://ensight.eos.nasa.gov/Organizations/daac/JPL_SMAP.shtml

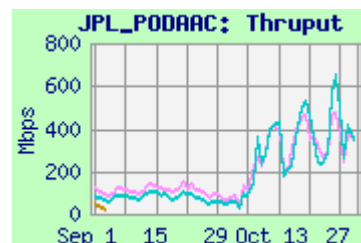
The 49 mbps requirement from GSFC to JPL SMAP begins this month, before the planned SMAP launch in December. Testing from **EDOS** to SMAP is done using both a **single stream** and **6 streams**. Performance was very noisy this month, and exhibited significant diurnal variation. The rating is **Low** with 6 streams, but **Bad** with a single stream.

**3.1.7 MLS:** http://ensight.eos.nasa.gov/Missions/aura/JPL_MLS.shtml

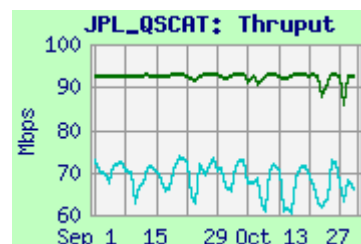
Thruput from both **ESDIS-PTH** and **GSFC-NISN** also exhibited significant diurnal variation this month but were way above the modest 1.2 mbps requirement, so the rating remains **Excellent**.

**3.1.8 PODAAC:**
http://ensight.eos.nasa.gov/Organizations/production/JPL_PODAAC.shtml

There is no longer a requirement from GSFC to JPL PODAAC in the database. Performance improved this month, with an upgrade to the PODAAC test host, and exhibited diurnal variation. Thruput was way above the previous 1.5 mbps PODAAC requirement.

**3.1.9 QSCAT:**
http://ensight.eos.nasa.gov/Organizations/daac/JPL_QSCAT.shtml

There is no longer a requirement from GSFC to JPL QSCAT in the database. Thruput from **ESDIS-PS** to QSCAT was stable, but exhibited diurnal variation from **GSFC-NISN**. Thruput from both remained well above the modest previous 0.6 mbps requirement.





3.2) LaRC → JPLRating:  **Almost Adequate** → **Excellent**

Web Pages:

http://ensight.eos.nasa.gov/Organizations/production/JPL_TES.shtmlhttp://ensight.eos.nasa.gov/Missions/terra/JPL_MISR.shtmlhttp://ensight.eos.nasa.gov/Organizations/production/JPL_PTH.shtml**Test Results:**

| Source → Dest | Medians of daily tests (mbps) | | | User Flow |
|---------------------|-------------------------------|--------|-------|-----------|
| | Best | Median | Worst | |
| LaRC ANGE → JPL-TES | 400.0 | 304.5 | 189.4 | 12.8 |
| LaRC ASDC → JPL-TES | 166.2 | 36.5 | 18.6 | |
| LaRC ANGE → JPL-PTH | 304.7 | 259.8 | 29.3 | |

Requirements:

| Source → Dest | Date | Mbps | Prev | Rating |
|----------------------|----------|------|------|--|
| LaRC → JPL-Combined | CY '12 – | 83.5 | 69.3 |  Excellent |
| LaRC ASDC → JPL-MISR | CY '12 – | 78.1 | 62.3 |  Low |
| LaRC ASDC → JPL-TES | CY '12 – | 5.5 | 7.0 | Excellent |

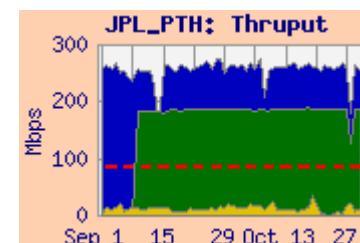
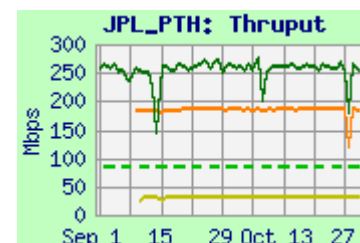
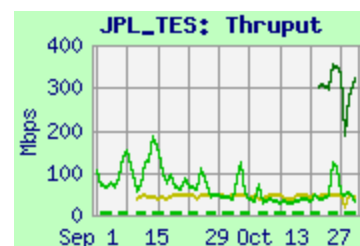
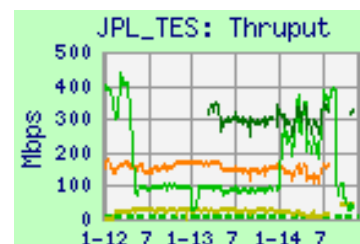
3.2.1 LaRC→ JPL (Overall, TES): Performance from LaRC ASDC to JPL dropped dramatically in mid August, and continued to have significant diurnal variation this month (similar to GSFC to JPL performance). LaRC ASDC to JPL-TES had improved dramatically in early January 2014 with the ASDC node upgrade!

Testing from LaRC ANGe to JPL-TES had been discontinued in July, since results had been similar to those from LaRC ASDC. But with the drop from LaRC ASDC, testing from LaRC ANGe was restarted in October. Results were similar to previous results, and much better than from LaRC ASDC currently. This implies congestion at LaRC ASDC, as well as NISN PIP to JPL.

The LaRC to JPL Overall rating is now based on the performance from LaRC ANGe to JPL-TES, since it more accurately shows the network capability. The median thrupt was above 3 x the combined requirements, so the Overall rating improves back to **Excellent**. Total LaRC to JPL user flow is about 23% of the requirement (without contingency).

The median thrupt from LaRC ASDC to JPL-TES remained well over 3 x the TES requirement, so the TES rating remains **Excellent**. User flow to TES is very low.

Performance from LaRC ANGe to JPL-PTH was much more stable than LaRC ASDC to JPL-TES – no mid-August degradation is apparent. JPL-PTH is directly connected to the NISN router, so it is not affected by the congestion between NISN and the JPL campus.



3.2) LaRC → JPL (continued)

3.2.2 LaRC → JPL-MISR: http://ensight.eos.nasa.gov/Missions/terra/JPL_MISR.shtml

Test Results:

| Source → Dest | Medians of daily tests (mbps) | | | User Flow |
|----------------------|-------------------------------|--------|-------|-----------|
| | Best | Median | Worst | |
| LaRC ASDC → JPL-MISR | 48.8 | 27.2 | 7.0 | 5.3 |
| LaRC PTH → JPL-MISR | 66.3 | 28.9 | 2.0 | |

Requirements:

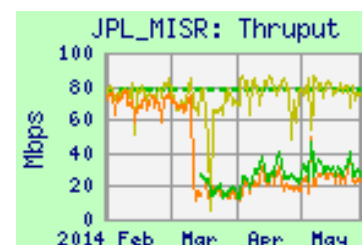
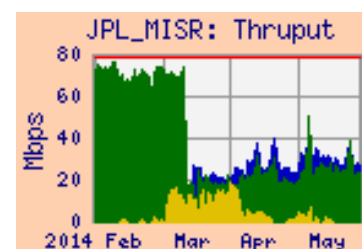
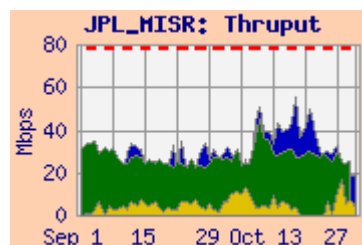
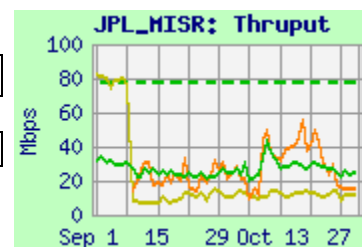
| Source → Dest | Date | Mbps | Prev | Rating |
|----------------------|----------|------|------|--------|
| LaRC ASDC → JPL-MISR | CY '12 – | 78.1 | 62.3 | Low |

Performance from **LaRC ASDC** to JPL-MISR is similar to that from **LaRC PTH**, limited by the Fast-E connection to the MISR node. Thruput to MISR from both sources dropped severely in March 2014, after improving in December 2013.

The median integrated thruput from **LaRC ASDC** improved to slightly above 1/3 the MISR requirement, so the MISR rating improves (!) to **Low**. User flow increased a bit, and averaged only about 6.8% of the requirement, without contingency.

Note that there was a user flow peak, beginning in late February, BEFORE the measured thruput dropped in March, suggesting that the user flow is not the cause of the thruput drop.

The LaRC → JPL Overall rating is not based on this result, however, since it not indicative of the capability of the network.



4) LaRC

4.1) JPL → LaRC

Rating: Continued **Excellent**

Web Page: http://ensight.eos.nasa.gov/Organizations/production/LARC_PTH.shtml

Test Results:

| Source → Dest | Medians of daily tests (mbps) | | | User Flow |
|--------------------|-------------------------------|--------|-------|-----------|
| | Best | Median | Worst | |
| JPL-PTH → LaRC PTH | 511.6 | 488.8 | 123.1 | 0.65 |
| JPL-TES → LaRC PTH | 803.4 | 398.5 | 48.6 | |

Requirements:

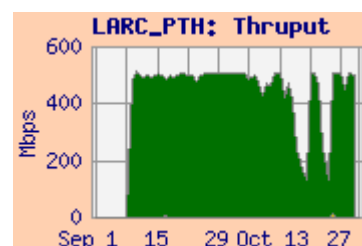
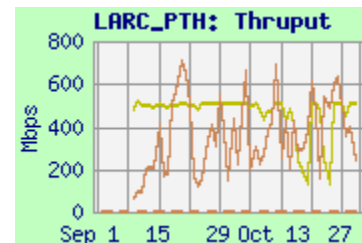
| Source → Dest | Date | Mbps | Prev | Rating |
|---------------|----------|------|------|-----------|
| JPL → LaRC | CY '12 – | 1.1 | 1.5 | Excellent |

Comment: This requirement is primarily for TES products produced at the TES SIPS at JPL, being returned to LaRC for archiving. The route from JPL to LaRC is via NISN PIP. This month the throughput from JPL-TES was noisy, but remained much higher than the requirement; the rating remains **Excellent**.

Throughput from JPL-NISN-PTH to LaRC-PTH increased at the beginning of June, when JPL-NISN-PTH was connected to a Gig-E port on a NISN switch – previously it was limited to 100 mbps due to its connection to a Fast-E port. The throughput is now similar to, but less noisy than from JPL-TES.

Throughput from both JPL sources to LaRC-PTH increased again in September, when LaRC-PTH was upgraded.

The JPL to LaRC integrated graph shows the 0.65 mbps user flow from JPL to LaRC this month. This is the entire NISN flow from JPL to LaRC – it may not all be EOS related. But it is consistent with the EOS requirement.



4.2) GSFC → LaRC:**Rating:** Continued **Excellent**

Web Pages : <http://ensight.eos.nasa.gov/Organizations/production/LARC.shtml>
http://ensight.eos.nasa.gov/Organizations/production/LARC_ANGe.shtml
http://ensight.eos.nasa.gov/Organizations/production/LARC_PTH.shtml

Test Results:

| Source → Dest | Medians of daily tests (mbps) | | | User Flow | Integrated |
|------------------------------|-------------------------------|--------|-------|-----------|------------|
| | Best | Median | Worst | | |
| GES DISC → LaRC ASDC | 935.6 | 934.3 | 572.1 | 49.7 | 934.9 |
| GSFC-EDOS → LaRC ASDC | 924.5 | 815.9 | 123.7 | | |
| ESDIS-PTH → LaRC-ANGe | 917.2 | 832.1 | 530.7 | | |
| GSFC-NISN → LaRC-ANGe | 903.0 | 839.9 | 632.6 | | |
| GES DISC → LaRC-PTH | 922.7 | 769.1 | 608.5 | | |
| GSFC-NISN → LaRC-PTH | 913.5 | 858.0 | 663.4 | | |
| NPP-SD3E → LaRC-PTH | 906.8 | 737.1 | 498.2 | | |

Requirements:

| Source → Dest | Date | Mbps | Prev | Rating |
|-------------------------------|----------|------|------|------------------|
| GSFC → LARC (Combined) | CY '12 – | 60.7 | 52.2 | Excellent |

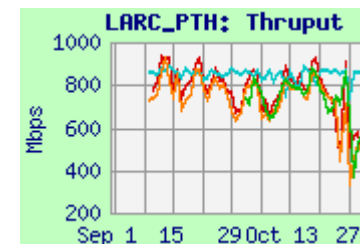
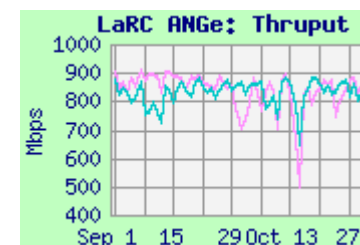
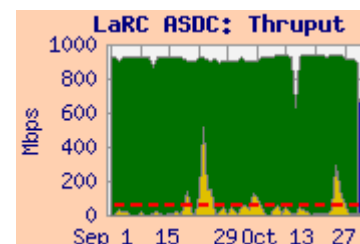
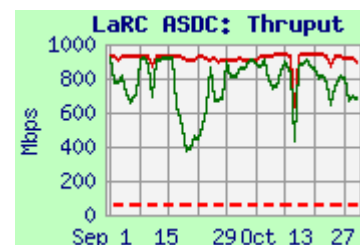
Comments:

GSFC → LaRC ASDC: Thruput from **GES DISC** to LaRC ASDC DAAC remained well above 3 x the increased combined requirement, close to the circuit limitation, so the rating remains **Excellent**. Thruput to ASDC from **GSFC-EDOS** was slightly lower and noisier, but improved a bit in mid March '14 along with other tests from EDOS.

As seen on the integrated graph, the 50 mbps average user flow this month was close to typical and the requirement.

GSFC → ANGe (LaTIS): Testing to ANGe ("Bob") from both **ESDIS-PTH** and **GSFC-NISN** was stable, close to the circuit limitation. (Note the expanded scale on the graph).

GSFC → LaRC-PTH: Testing to LaRC-PTH from **GES DISC**, **NPP-SD3E**, and **GSFC-NISN** improved from all sources in late September when the LaRC-PTH node was upgraded. (Note the expanded scale on the graph). Performance is now similar to ASDC and ANGe.



5) Boulder CO sites:

5.1) NSIDC:

Ratings: GSFC → NSIDC: Continued **Excellent**GHRC → NSIDC: ↓ **Excellent** → **Good**JPL → NSIDC: **Excellent**

Web Pages: <http://ensight.eos.nasa.gov/Organizations/production/NSIDC.shtml>
http://ensight.eos.nasa.gov/Organizations/production/NSIDC_SIDADS.shtml
http://ensight.eos.nasa.gov/Organizations/production/NSIDC_PTH.shtml

Test Results: NSIDC S4PA

| Source → Dest | Medians of daily tests (mbps) | | | User Flow | Integrated |
|-------------------------------------|-------------------------------|--------|-------|-----------|------------|
| | Best | Median | Worst | | |
| MODAPS-PDR → NSIDC DAAC | 782.1 | 631.8 | 355.7 | 6.3 | 631.8 |
| GES-DISC → NSIDC DAAC | 867.6 | 824.5 | 652.2 | | |
| GSFC-EDOS → NSIDC DAAC | 835.0 | 689.3 | 65.2 | | |
| ESDIS-PTH → NSIDC DAAC | 857.6 | 810.1 | 683.4 | | |
| GSFC-ISIPS → NSIDC (iperf) | 630.2 | 626.0 | 568.4 | | |
| JPL SMAP → NSIDC DAAC | 808.0 | 409.0 | 127.0 | | |
| GHRC → NSIDC DAAC (nuttcp) | 44.2 | 10.0 | 2.5 | 0.003 | |
| GHRC → NSIDC DAAC (ftp pull) | 9.7 | 8.1 | 2.0 | | |

Requirements:

| Source → Dest | Date | Mbps | Prev | Rating |
|---------------|----------|------|------|------------------|
| GSFC → NSIDC | 8/14 – | 38.5 | 16.8 | Excellent |
| JPL → NSIDC | FY '15 – | 17.1 | 0.16 | Excellent |
| GHRC → NSIDC | FY '15 – | 5.14 | 2.08 | ↓ Good |

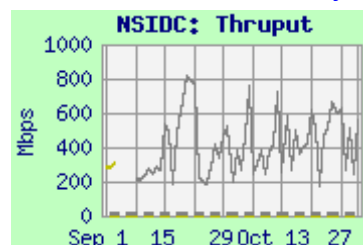
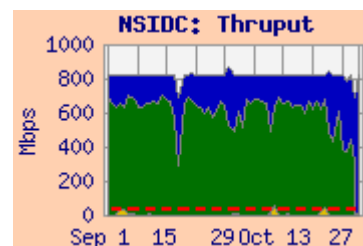
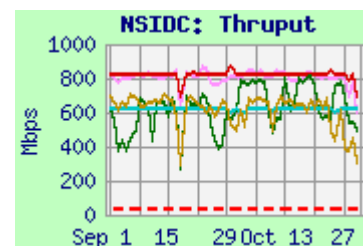
Comments: The requirements were updated in June to use the FY '14 database. AMSR-E flows from EDOS and JPL have been removed. **The MODIS reprocessing flow requirement is now effective, although the actual flow has not begun.**

5.1.1 GSFC → NSIDC S4PA: The rating is based on testing from the **MODAPS-PDR** server to the NSIDC DAAC, since that is the primary flow. The median thruput from **MODAPS-PDR** remained well above 3 x the increased requirement, so the rating remains **Excellent**. The 6.3 mbps average user flow was consistent with the requirement – without MODIS reprocessing or contingency.

Performance from **GES-DISC**, **GSFC-EDOS**, and **GSFC-ISIPS** was also somewhat noisy but mostly stable.

5.1.2 JPL SMAP → NSIDC S4PA: There is no longer a JPL to NSIDC requirement for AMSR-E. A new 17.1 mbps flow for SMAP began this month (this requirement is under review).

Testing to NSIDC was switched from **JPL PODAAC** to the **JPL-SMAP** test node in September -- in anticipation of the SMAP requirement. Thruput from **JPL-SMAP** was similar to previous testing from **JPL PODAAC**, and well in excess of the SMAP requirement, rating **Excellent**.



5) Boulder CO sites (Continued):

5.1.3 GHRC, GHRC-ftp → NSIDC S4PA: GHRC (NSSTC, UAH, Huntsville, AL) sends reprocessed AMSR-E data to NSIDC via Internet2. This requirement increased to 5.14 mbps this month (was 2.08 mbps previously) – when the next reprocessing campaign begins.

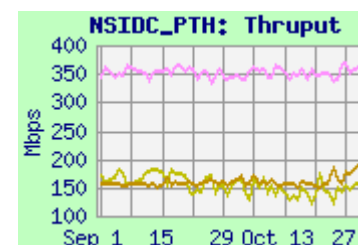
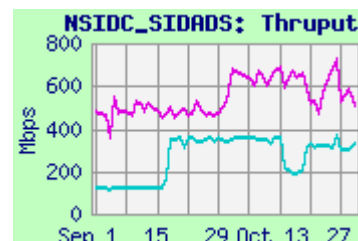
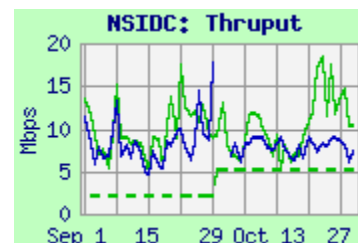
The median integrated throughput was above the increased requirement, but no longer by 3 x, **so the rating drops to Good**

Test Results: NSIDC-SIDADS, NSIDC-PTH

| Source → Dest | Medians of daily tests (mbps) | | |
|--------------------------|-------------------------------|--------|-------|
| | Best | Median | Worst |
| GSFC-ENPL → NSIDC-SIDADS | 782.0 | 633.5 | 433.0 |
| GSFC-NISN → NSIDC-SIDADS | 364.4 | 333.2 | 203.2 |
| ESDIS-PTH → NSIDC-PTH | 400.9 | 350.2 | 266.0 |
| MODAPS-PDR → NSIDC-PTH | 222.1 | 157.6 | 134.1 |
| JPL-NISN-PTH → NSIDC-PTH | 217.0 | 146.0 | 76.0 |

5.1.4 GSFC → NSIDC-SIDADS: Performance from **GSFC-ENPL** was retuned in June (using 30 streams, to compensate for the small window size on SIDADS) with increased throughput. Testing from **GSFC-NISN** was similarly retuned in September.

5.1.5 NSIDC-PTH: Throughput from GSFC sources to NSIDC-PTH was stable. **JPL-NISN-PTH** was limited by its Fast-E connection until it was upgraded and testing retuned in June. The NSIDC-PTH machine is scheduled for replacement and upgrade soon.



5.2) LASP:

Ratings: LASP → GSFC: Continued **Excellent**

Web Page: <http://ensight.eos.nasa.gov/Organizations/production/LASP.shtml>

Test Results:

| Source → Dest | Medians of daily tests (mbps) | | |
|-------------------------------|-------------------------------|--------|-------|
| | Best | Median | Worst |
| ESDIS-PTH → LASP blue (scp) | 3.70 | 3.66 | 3.43 |
| ESDIS-PTH → LASP blue (iperf) | 9.38 | 9.37 | 7.37 |
| GES DISC → LASP blue (iperf) | 4.19 | 4.18 | 4.11 |
| LASP → GES DISC | 9.31 | 9.30 | 8.87 |

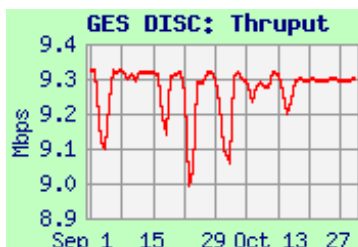
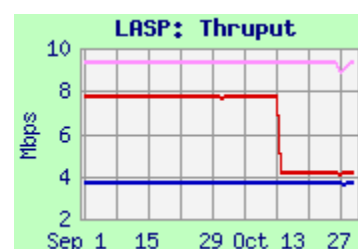
Requirement:

| Source → Dest | Date | Mbps | Rating |
|-----------------|----------|-------|-----------|
| LASP → GES DISC | CY '10 - | 0.016 | Excellent |

Comments: In January '11, LASP's connection to NISN PIP was rerouted to a 10 mbps connection to the NISN POP in Denver; previously it was 100 mbps from CU-ITS via NSIDC.

Iperf testing from **GES DISC** has been very stable since February 2013, when it improved with the GES DISC firewall upgrade. **Throughput dropped in mid-October** – under investigation.

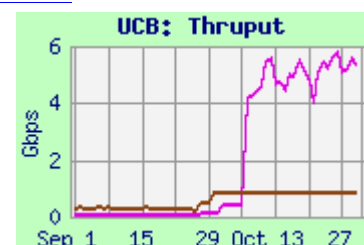
Iperf and **SCP** testing from **ESDIS-PTH** was very stable, and consistent with the circuit limitation, as was return testing from **LASP** to GES DISC, rating **Excellent**.



5.3) UCB: <http://ensight.eos.nasa.gov/Organizations/daac/UCB.shtml>

Test Results:

| Source | Medians of daily tests (mbps) | | |
|-----------|-------------------------------|--------|--------|
| | Best | Median | Worst |
| GSFC-ENPL | 6194.6 | 4942.9 | 2301.2 |
| GSFC-ESTO | 856.0 | 844.0 | 730.0 |



Comments: Thruput from both **GSFC-ENPL** and **GSFC-ESTO** improved in early October, by switching back to the 10 gig connected test node at UCB (it had began failing consistently in mid-May 2013, so testing was switched to a 1 gig test node in mid-June '13). The route is via Internet2 to FRGP, similar to NCAR.

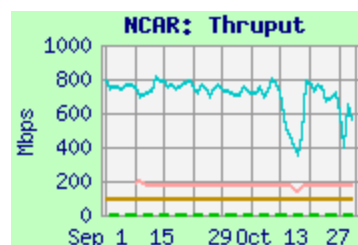
5.4) NCAR:

Ratings: LaRC → NCAR: Continued **Excellent**
 GSFC → NCAR: Continued **Excellent**

Web Pages <http://ensight.eos.nasa.gov/Missions/terra/NCAR.shtml>

Test Results:

| Source | Medians of daily tests (mbps) | | |
|---------------|-------------------------------|--------|--------|
| | Best | Median | Worst |
| LaRC PTH | 181.8 | 181.2 | 115.8 |
| GSFC-ENPL-10G | 5255.2 | 3815.0 | 1791.2 |
| GSFC-ENPL-FE | 96.1 | 95.6 | 94.9 |
| GSFC-NISN | 831.4 | 712.1 | 255.2 |

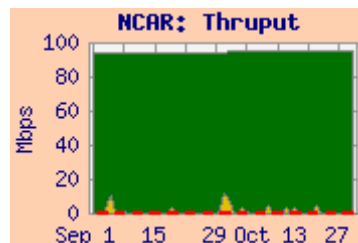


Requirement:

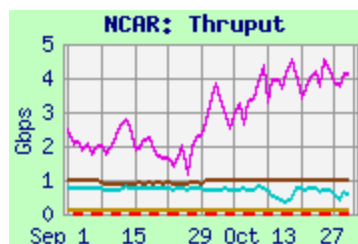
| Source | Date | Mbps | Prev | Rating |
|--------|----------|-------|------|-----------|
| LaRC | CY '12 - | 0.044 | 0.1 | Excellent |
| GSFC | CY '12 - | 0.111 | 5.0 | Excellent |

Comments: NCAR has a SIPS for MOPITT (Terra, from LaRC), and has MOPITT and HIRDLS (Aura, from GSFC) QA requirements. Testing is to NCAR's 10 gigabit capable PerfSonar since March '12.

From LaRC: Thruput from **LaRC-PTH** improved a bit with the **LaRC-PTH** upgrade in September, but remains limited to 200 mbps by agreement with CSO / NISN. The median remained well above 3 x the tiny requirement, so the rating remains **Excellent**.



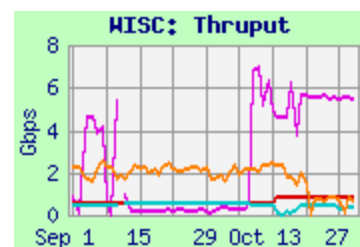
From GSFC: From **GSFC-NISN**, the route is via NISN to the MAX (similar route as from **LaRC-PTH**). Thruput was mostly stable this month. The median was well above 3 x the tiny requirement, so the rating remains **Excellent**. The user flow from GSFC-EBnet averaged about 1.1 mbps this month – after a few peaks in previous months. This is above the revised requirement, but closer to the previous requirement.



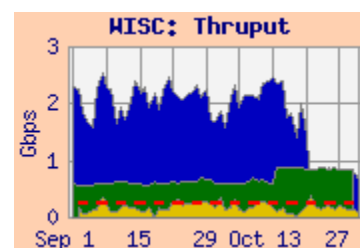
From **GSFC-ENPL-10G**, with a 10 Gig-E interface, and a 10 gig connection to MAX, performance to NCAR's 10 Gig PerfSonar node is also noisy, but averages over 3 gbps, and gets over 5 gbps on peaks.

6) Wisconsin:Rating: Continued **Excellent**Web Pages <http://ensight.eos.nasa.gov/Missions/NPP/WISC.shtml>**Test Results:**

| Source Node | Medians of daily tests (mbps) | | | User Flow | Integrated |
|------------------|-------------------------------|--------|--------|-----------|------------|
| | Best | Median | Worst | | |
| NPP-SD3E | 2608.4 | 1775.1 | 9.1 | 141.8 | 1775.1 |
| GES DISC | 843.8 | 830.2 | 573.3 | | |
| GSFC ENPL | 6194.6 | 4942.9 | 2301.2 | | |
| LaRC ANGe | 512.9 | 440.9 | 182.9 | | |

**Requirements:**

| Source Node | Date | mbps | Prev | Rating |
|----------------------|---------|-------|-------|------------------|
| NPP-SD3E | FY'14 - | 242.3 | 237.2 | Excellent |
| GSFC MODAPS | FY'14 - | 21.9 | 16.5 | Excellent |
| GSFC Combined | FY'14 - | 264.2 | 253.7 | Excellent |
| LaRC Combined | CY'12 - | n/a | 7.9 | n/a |



Comments: The University of Wisconsin is included in this Production report due to its function as Atmosphere PEATE for NPP. Wisconsin continues to be an SCF on the MODIS, CERES and AIRS teams.

GSFC: Testing from **NPP-SD3E** was switched to Wisconsin's 10 gig server in May 2013, with initial thruput usually close to 2 gbps! However, there was a significant performance drop in mid-October. But the integrated thruput from **NPP-SD3E** remained above the NPP requirement by more than 3 x, so the NPP rating remains **Excellent**. It was also above the GSFC combined requirement by more than 3 x, so the combined rating also remains **Excellent**.

Testing from **GSFC-ENPL** was switched to the 10 gig server at Wisconsin (SSEC) at the end of March 2013. Due to problems, testing was switched to a backup server in September, with reduced results, and back to the 10 gig server in early October.

User flow was consistent to the requirement, similar to last month.

The route from EBnet at GSFC is via MAX to Internet2, peering with MREN in Chicago.

LaRC: There is no longer a CERES requirement from LaRC to Wisconsin. In April 2013, testing from **LaRC ANGe** was switched to the new SSEC 10 gig server; performance improved at that time. Thruput from **LaRC ANGe** remains well above the previous 7.9 mbps requirement; it would be rated **Excellent**. The route from LaRC is via NISN, peering with MREN in Chicago.

7) KNMI:Rating: Continued **Excellent**Web Page http://ensight.eos.nasa.gov/Missions/aura/KNMI_ODPS.shtml**Test Results:**

| Source → Dest | Medians of daily tests (mbps) | | | User Flow | Integrated |
|------------------------------|-------------------------------|--------|-------|-----------|------------|
| | Best | Median | Worst | | |
| OMISIPS → KNMI-ODPS | 120.4 | 71.2 | 49.4 | 2.59 | 71.2 |
| GSFC-ENPL → KNMI-ODPS | 214.0 | 76.2 | 36.9 | | |

Requirements:

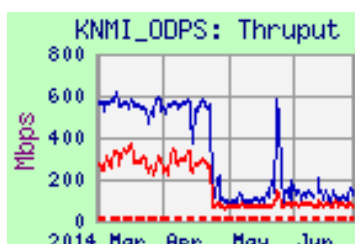
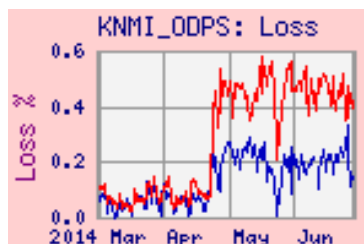
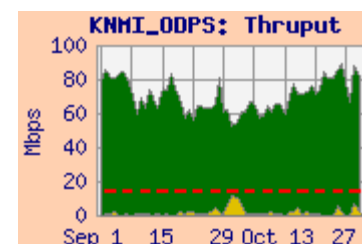
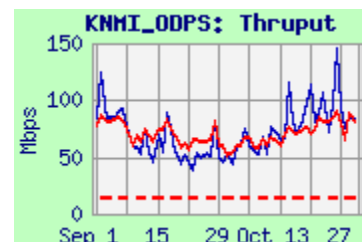
| Source Node | Date | mbps | Prev | Rating |
|----------------|---------|------|------|------------------|
| OMISIPS | CY'12 - | 13.4 | 0.03 | Excellent |

Comments: KNMI (DeBilt, Netherlands) is a SIPS and QA site for OMI (Aura). The route from GSFC is via MAX to Internet2, peering in DC with Géant's 2+ x 10 gbps circuit to Frankfurt, then via Surfnets through Amsterdam.

The requirement was increased with the use of the database to 13.4 mbps, a much more realistic value than the previous 0.03 mbps.

The rating is based on the results from **OMISIPS** on EBnet at GSFC to the ODPS primary server at KNMI. **Thruput from both sources was stable until near the end of April, when it dropped significantly, due to increased packet loss. But the median thruput remains well above 3 x the increased requirement, so the rating remains Excellent.**

The user flow, however, averaged only 2.59 mbps this month, similar to recent months, but only 19% of the revised requirement.



8) JSpace - ERSD:

Ratings: **GSFC → ERSD: Continued Excellent**
ERSD → EROS: Continued Excellent
ERSD → JPL-ASTER-IST: N/A

Web Page: <http://ensight.eos.nasa.gov/Organizations/production/ERSDAC.shtml>

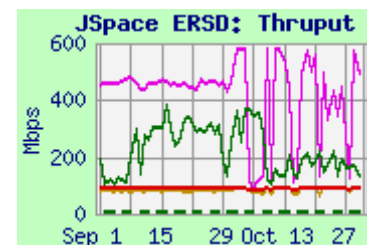
US ↔ JSpace - ERSD Test Results

| Source → Dest | Medians of daily tests (mbps) | | | User Flow | Integrated |
|-------------------------------------|-------------------------------|--------|-------|-----------|------------|
| | Best | Median | Worst | | |
| GSFC-EDOS → JSpace-ERSD | 368.3 | 172.1 | 8.8 | 5.6 | 175.1 |
| GES DISC → JSpace-ERSD | 93.8 | 91.8 | 66.1 | | |
| GSFC ENPL (FE) → JSpace-ERSD | 91.5 | 90.8 | 67.4 | | |
| GSFC ENPL (GE) → JSpace-ERSD | 582.0 | 466.0 | 59.7 | | |
| JSpace-ERSD → EROS | 311.7 | 297.6 | 230.3 | 4.5 | 299.0 |
| JSpace-ERSD → JPL-TES | 61.5 | 17.5 | 10.8 | | |

Requirements:

| Source → Dest | CY | Mbps | Prev | Rating |
|------------------------------------|-------|------|------|------------------|
| GSFC → JSpace-ERSD | '14 - | 16.4 | 6.75 | Excellent |
| JSpace-ERSD → JPL-ASTER IST | '12 - | 0.31 | 0.31 | Excellent |
| JSpace-ERSD → EROS | '12 - | 8.33 | 8.3 | Excellent |

Comments: **8.1 GSFC → JSpace-ERSD:** The median throughput to JSpace-ERSD from most sources improved in September 2011, when the connection from JSpace-ERSD to Tokyo-XP was upgraded to 1 gbps (from 100 mbps).

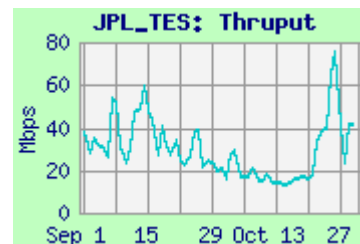


Performance from all sources became more noisy at the end of September. Median integrated throughput from **GSFC-EDOS** was well above 3 x the increased requirement, so the rating remains **Excellent**. The 5.6 mbps user flow from GSFC to JSpace-ERSD was close to normal this month, below the increased requirement.

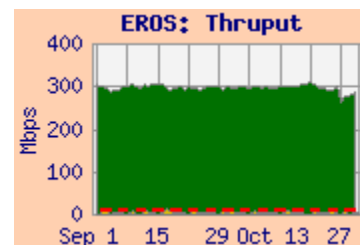
Throughput from **GSFC ENPL** was also noisy, but averaged over 400 mbps.

Testing to and from a new server at ERSD was initiated in November.

8.2 JSpace-ERSD → JPL-ASTER-IST: The JPL-ASTER-IST test node was retired in October 2012. JPL no longer uses a distinct IST; instead, JPL personnel log in directly to the IST at JSpace-ERSD. As a substitute, testing was initiated from ERSD to a different node at JPL ("TES"). Results to TES were noisy, but would still be rated **Excellent**.



8.3 JSpace-ERSD → EROS: Throughput was stable and remains well above the requirement, so the rating remains **Excellent**. The user flow this month was consistent with the requirement, without contingency.

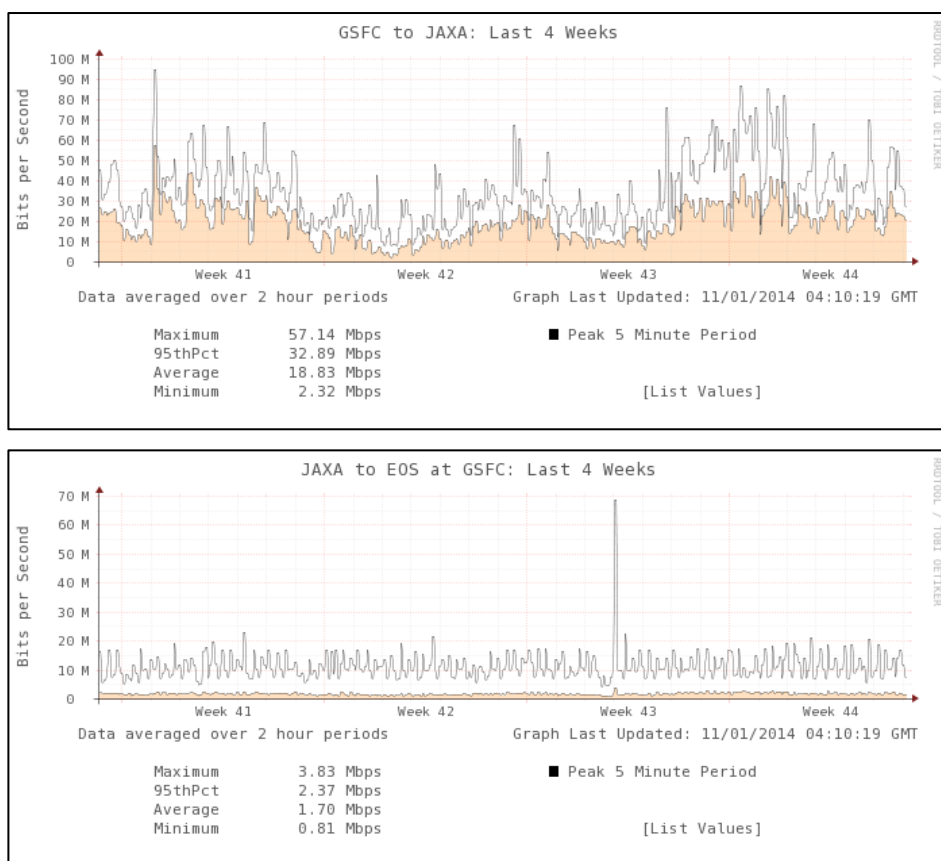


10) GSFC \leftrightarrow JAXARatings: GSFC \rightarrow JAXA: N/AJAXA \rightarrow GSFC: N/A

The JAXA test hosts at EOC Hatoyama were retired on March 31, 2009. No additional testing is planned for AMSR or TRMM. All testing to JAXA-TKSC for ALOS was terminated at the end of June '09. Tests are being conducted with JAXA to evaluate different file transfer protocols for GPM -- but results are not suitable for this report.

However, the user flow between GSFC-EBnet and JAXA continues to be measured. As shown below, the user flow this month averaged 18.8 mbps from GSFC-EBnet to JAXA, and 1.7 mbps from JAXA to GSFC-EBnet.

These values are more or less consistent with the new database requirements of 15.4 mbps from GSFC to JAXA, and 3.3 mbps from JAXA back to GSFC (The AMSR-E requirement from JAXA to JPL has been removed, due to AMSR-E failure). However, since no iperf tests are run, the true capability of the network cannot be determined, and therefore no rating is assigned.



For comparison, testing is performed from GSFC to a test node at the Tokyo Exchange point, which is on the route from GSFC to JAXA. Performance to the Tokyo-XP 10 gig server, is well in excess of the JAXA requirements.

